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TM-(L)-734/021/00

# TECHNICAL MEMORANDUM

(TM Series)

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Systems Division Program, for Space Systems Division, AFSC.

1604 Simulation Program Descriptions	SYSTEM
Milestone 11	DEVELOPMENT
Tracking Report Processor for Augmentation (STRK)	CORPORATION
by	2500 COLORADO AVE.
J. D. Solomon	SANTA MONICA
13 March 1963	CALIFORNIA
Approved	
J. B. Munson	

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## 1.0 SUBROUTINE IDENTIFICATION

### 1.1 Title

STRK - Ident: K22, Mod. 01

### 1.2 Programmed

December 1962, J. D. Solomon, System Development Corporation

### 1.3 Documented

February 1963, J. D. Solomon, System Development Corporation

## 2.0 PURPOSE

This routine is used to output tracking reports previously generated and recorded on magnetic tape by the SIPSA system\*. Data is processed for the VERLORT, TLM18, Angle Tracker, TELDATA, PRELORT, and Disk-on-Rod antennas. Reports from two antennas are output simultaneously.

## 3.0 USAGE

### 3.1 Calling Sequence

L	RTJ	STRK
	A	B
L+1	C	D
	ZRØ	
L+2	01	CN
	00	UN
		TN
		00
L+3	NORMAL RETURN	

---

\*A description of SIPSA is contained in the reference listed in Section 9.1.

where:

A     = Relative position of first 160-A word  
B     = Start address of data  
If C   = 13, Output is on Tape Unit 3 and on the 1612 printer.  
If C   = 0, Output is on tape unit specified in L+2  
D     = Data blocklength  
CN     = Channel number for tape output  
TN     = Logical tape unit  
UN     = 1607 cabinet number

### 3.2 Error Printout

INCORRECT MESSAGE LENGTH. \*SOCT WILL LIST MESSAGE FOR \*STRK.

If the tracking report is not equal to 23 or 15 words in length, the error message will be printed on line and listed on the specified output tape. SOCT will dump the message on the output tape and return control to DROPSA. No operator action is required. (See TM-(L)-734/020/00 for octal message format.)

### 3.3 Tape Assignments

A COPII augmentation master tape is used on logical Tape Unit 1. A blank tape is used on the unit specified in L+2 of the calling sequence.

### 3.4 Output Data Format

The data format for on-line and off-line output is presented in Appendix B.

The (A) and (P) preceding the antenna identification indicate active and passive tracking, respectively.

### 4.0 METHOD

STRK is entered from the control program, DROPSA, with the required input parameters in the calling sequence. The message is extracted and

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checked for correct length. If the message length is not equal to 15 or 23 words in length, an error routine is entered and control is transferred to the routine SOCT.

If the message length is correct, the antenna identification is checked. If incorrect, "ILLEGAL" is stored in the antenna identification word for output. The data buffer for the illegal antenna identification is then cleared for output.

If the message length is 15 words and the antenna identification is valid, the first data buffer is filled with data and the second buffer is cleared. "NO DATA" is stored in the second antenna identification word and the message is output.

If the message length is 23 and the data is valid, both data buffers are filled and the message is output. Control is returned to DROPSA.

Sample printouts are included in Appendix B. (A data flow is presented in Appendix A.)

## 5.0 RESTRICTIONS

### 5.1 Hardware Requirement

A 1604 Computer, two tape units on a 1607 cabinet, and a 1612 printer are required.

### 5.2 Required Subroutines

The control program, DROPSA, and the subroutines SOCT, FLOAT, OUTPUT, and OUTERR are required.

### 5.3 Reference Pool Items

Tables SBCD and ABCD are referenced.

### 5.4 Index Register Requirements

Index registers 1-6 are used. The contents of register 6 are not saved.

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## 6.0 TIMING

Average operation time is 300 m.s.

## 7.0 STORAGE REQUIREMENTS

Program	424 <sub>8</sub> Cells
Temporary and Constants	<u>153<sub>8</sub> Cells</u>
Total	577 <sub>8</sub> Cells

## 8.0 VALIDATION TEST

### 8.1 Test Inputs

#### 8.1.2 Binary Tape

A Binary tape, containing Tracking Report messages, was generated by the SIPSA system\*.

#### 8.1.3 Control Deck

The structure of the card deck used in the test is presented in Appendix C.

### 8.2 Procedure

A COPII augmentation master tape was mounted on logical Tape Unit 1.

The input tape was mounted on Logical Tape Unit 2.

The card deck shown in Appendix C was read into the 533 reader and the test was executed.

Data was output on Logical Tape Unit 3 and the test was terminated.

### 8.3 Test Outputs

A partial listing of the output tape is presented in Appendix B.



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9.0 REFERENCES

9.1 TM-(L)-734/015/00, Computer Program Design Specifications for the Simulation of the Augmented SCF Environment at the STA and CPDC, System Development Corporation, 21 November 1962.

9.2 TM-(L)-734/017/00, Data Reduction and Output Preparation System for Augmentation (DROPSA), System Development Corporation, 15 March 1963.

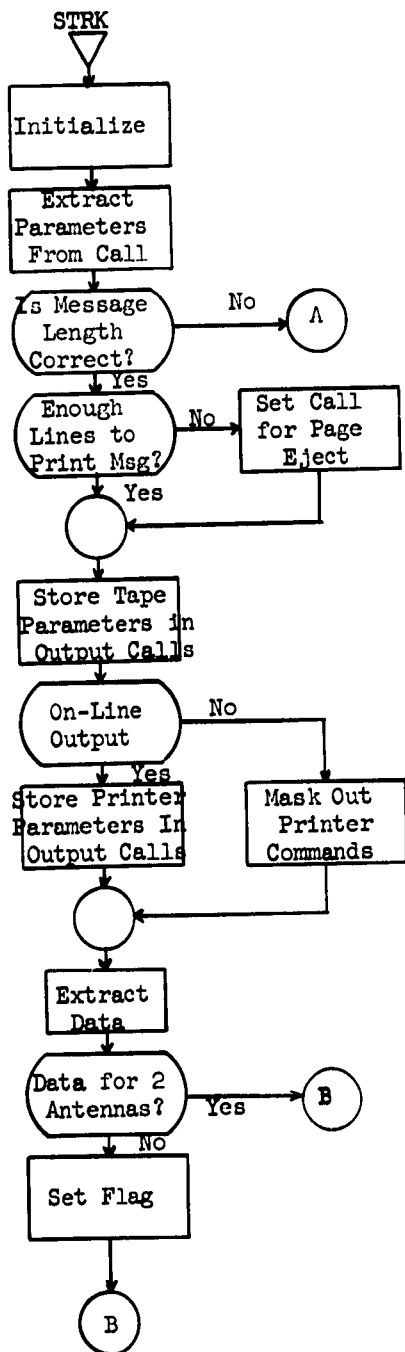
9.3 TM-(L)-734/020/00, Octal Dump for Simulation Augmentation Messages (SOCT), System Development Corporation, 15 March 1963.

9.4 CPL Catalogue Number 75923.

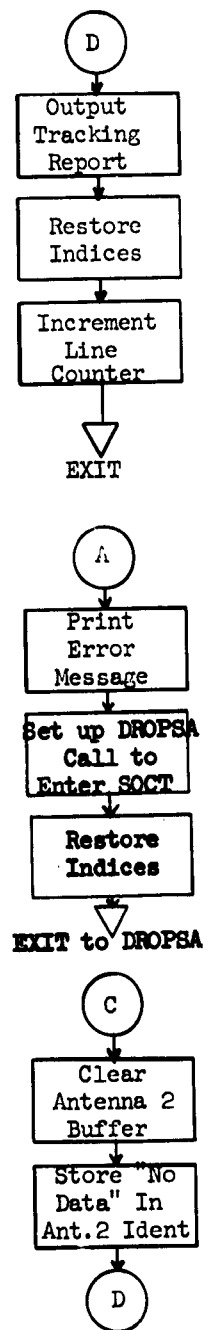
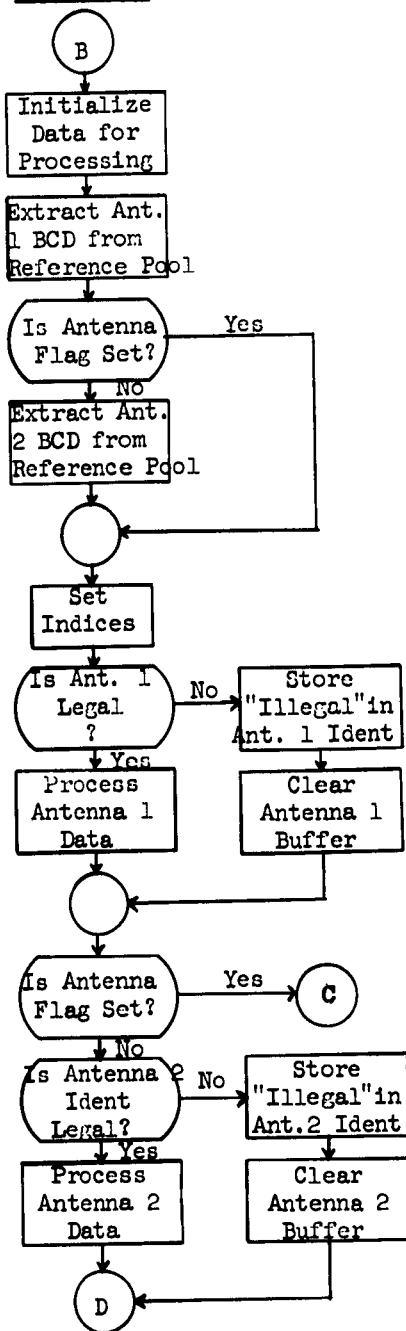
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# APPENDIX A



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APPENDIX B

OUTPUT DATA FORMAT

TRACKING REPORT

STATION COOK		SYSTEM TIME
		80349 SEC.
ANTENNA	(A) PRELORT	(A) T/D
LOCK-ON	YES	YES
AZIMUTH	165.52 DEG.	169.29 DEG.
ELEVATION	.41 DEG.	.64 DEG.
T.ANGLE/RANGE	1847.48 K/YDS	4.05 DEG.
DOPPLER COUNT	0	70185 CPS

TRACKING REPORT

STATION COOK		SYSTEM TIME
		80353 SEC.
ANTENNA	(A) PRELORT	(A) T/D
LOCK-ON	YES	YES
AZIMUTH	165.36 DEG.	169.29 DEG.
ELEVATION	.61 DEG.	.60 DEG.
T.ANGLE/RANGE	1814.41 K/YDS	4.14 DEG.
DOPPLER COUNT	0	70158 CPS

TRACKING REPORT

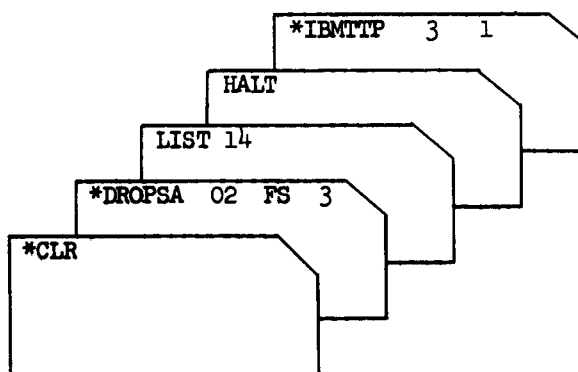
STATION COOK		SYSTEM TIME
		80357 SEC.
ANTENNA	(A) PRELORT	(A) T/D
LOCK-ON	YES	YES
AZIMUTH	165.06 DEG.	169.29 DEG.
ELEVATION	1.10 DEG.	.86 DEG.
T.ANGLE/RANGE	1781.39 K/YDS	3.96 DEG.
DOPPLER COUNT	0	70129 CPS

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APPENDIX C



CONTROL DECK

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(3)

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		J. Lytton	24077
L. DeCuir	24053		
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R. Dugas	22125	J. McKeown	23013
		J. Milanese	22155
R. Ellis	22131	J. Munson	22087
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C. Francis	25013	J. Ng	22077
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R. Frey	22078		
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		T. Polk	24113

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System Development Corporation,  
Santa Monica, California  
1604 SIMULATION PROGRAM DESCRIPTIONS  
MILESTONE 11 TRACKING REPORT  
PROCESSOR FOR AUGMENTATION (STRK).  
Scientific rept., TM(L)-734/021/00,  
by J. D. Solomon. 13 March 1963,  
8p., 4 refs.  
(Contract AF 19(628)-1648, Space Systems  
Division Program, for Space Systems  
Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers).  
Satellite Networks.

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△  
Reports that STRK (Tracking Report  
Processor for Augmentation) is used  
to output tracking reports previously  
generated and recorded on magnetic  
tape by the SIPSA (Simulated Input  
Preparation System for Augmentation)  
system. Also reports that data is  
processed for the VERLORT, TLM18, Angle  
Tracker, TELDATA, PRELORT, and Disk-  
on-Rod antennas.

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